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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,634	02/09/2004	Richard W. Lally	88138.000005	3204

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EXAMINER

NATALINI, JEFF WILLIAM

ART UNIT	PAPER NUMBER
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2858

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/774,634

Applicant(s)

LALLY ET AL.

Examiner

Jeff Natalini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 25 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) 16-24 and 26-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-15, 25 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/16/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group 1, claims 1-15, 25, and 36-40 in the reply filed on May 23, 2005 is acknowledged.

Claim Objections

2. Claims 1, 3-9, 12-14, 25, 26, and 37-40 are objected to because of the following informalities: Appropriate correction is required.

- In regard to claims 1, 25, and 36, there is no antecedent basis for "the charge amplifier", this application will be examined as though this refers to disconnecting the feedback amplifier that is in the preamble of the claim.
- In regard to claim 3, there is no antecedent basis for "the signal source", this will be examined as though this was introduced in this claim.
- In regard to claim 4, "small value capacitor" is unclear, it will be examined as though "small value" is deleted.
- In regard to claim 5, there is no antecedent basis for "the signal source", this will be examined as though this was introduced in this claim.
- In regard to claim 7, "the signature response" lacks antecedent basis, this will be examined as though it depended from claim 6.
- In regard to claim 8, "the signature response" lacks antecedent basis, this will be examined as though it depended from claim 6.

- In regard to claim 9, "the method of claim 8 wherein the signature response of claim 10" is indefinite, examiner will examine as though it read "the method of claim 6 wherein the signature response further comprises" as it seems as though it should depend from claim 6.
- In regard to claim 12, there is no antecedent basis for "the signal source", this will be examined as though this was introduced in this claim.
- In regard to claim 13, there is no antecedent basis for "the signal source", this will be examined as though this was introduced in this claim.
- In regard to claim 14, "the test circuit" lacks antecedent basis, and "the test signal has an amplitude approximating the maximum allowed" is unclear, it will be examined as though it read - the test signal has approximately the maximum allowed.
- In regard to claims 37-40, description of a preferred embodiment should not be included in the claims, everything except for the claimed subject matter should be deleted from the claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-3, 5-7, 9-11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (5447051) in view of Shimamura et al. (5205151).

In regard to claims 1, 6, 7, 9, 25, and 36, Hanks et al. discloses a system comprising a transducer (fig 4 (7)), a feedback amplifier (7b) coupled to the transducer and a signal processing circuit (7c) coupled to an output of the amplifier, a method of testing the transducer in-situ (abstract) comprising: coupling a test signal (V from switch S1) to the transducer (col 13 line 27-31); analyzing the response of the transducer to the test signal with the signal processing circuit (col 13 line 42-46); and comparing a measured response of the transducer to a signature response wherein the signature response comprises a measured response of an unmounted transducer (col 13 line 42-50, never states the transducer is coupled to a system, col 13 line 18-23, not specifically mounted).

Hanks et al. lacks specifically stating that during testing of the transducer the amplifier is disabled.

Shimamura et al. teaches a method for testing a sensor that removes the amplifier from the circuit (col 8 line 10-14; fig 5(54)).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. to disable the amplifier when testing the transducer as disclosed by Shimamura et al. in order to compare determined values (without amplification error) to detect if the sensor is defective (col 8 line 10-12).

In regard to claim 2, Hanks et al. discloses coupling an analyzer to an output of the amplifier and measuring the response of the transducer (fig 4 (7c) and col 13 line 42-46; also see fig 6a, amp-7b has output coupled to detector- 7c1).

In regard to claim 3, Hanks et al. discloses coupling impedance between the signal source and the amplifier (fig 4, resistor is connected right after the switched input, the only resistor not labeled in the figure).

In regard to claim 5, Hank et al. discloses wherein the signal source (fig 4 V through S1) generates a test signal to a resistor (only resistor not labeled, described above in claim 3) and onto an output of the amplifier (7c response).

In regard to claim 10, Hanks et al. discloses wherein the measured response is characterized by a specific amplitude (col 13 line 42-50).

In regard to claim 11, Hanks et al. discloses wherein an error signal is generated (col 3 line 26-42) when the amplitude of the signature response is outside a predetermined range (col 13 line 42-50; determines if transducer is functioning properly, it would be known there would be a cutoff point (range) where the difference between the measured signal and reference signal actually results in a malfunction).

In regard to claim 13, Hanks et al discloses wherein the signal source (fig 4, V output of S1) generates a test signal between an output of the transducer (7) and the input to the amplifier (7b).

In regard to claim 14, Hanks et al. discloses wherein the test signal has an amplitude approximating the maximum allowable (col 13 line 27-34).

In regard to claim 37, Hanks et al. discloses wherein the measured response of an analog output transducer is determined in a test system (abstract).

Hanks et al. as modified by Shimamura disclose the claimed invention as set forth above except wherein the output of the transducer is programmed to assume a predetermined value when an unacceptable fault condition is detected.

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. as modified by Shimamura et al. to use engineering intuition and have the transducer produce a desired, predetermined value known as an error value in order to provide all users of the system with the knowledge that a fault has been detected in the transducer.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (5447051) in view of Shimamura et al. (5205151) as applied to claim 3 above, and further in view of Vahavioios (3924456).

Hanks et al. as modified by Shimamura et al. disclose the claimed invention as set forth above except teaching a capacitor as the impedance.

Vahavioios discloses in a testing environment a transducer (fig 3 (12)) that has impedance components between its output and the amplifier (42), with a capacitor (53) being one a component.

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. as modified by Shimamura et al. to have a

capacitor as an impedance component as taught by Vahavioios in order to stabilize the signal of the transducer.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (5447051) in view of Shimamura et al. (5205151) as applied to claim 3 above, and further in view of the admitted prior art.

Hanks et al. as modified by Shimamura et al. disclose the claimed invention as set forth above except wherein the response is normalized for various environmental conditions.

The admitted prior art states that all factors influencing measurement are monitored (paragraph 6), and it is known in the art the environment can influence a device.

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. as modified by Shimamura et al. to normalize the response for environmental conditions as taught by the admitted prior art in order to increase the confidence in the result of measurement (paragraph 6).

7. Claims 8 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (5447051) in view of Shimamura et al. (5205151) as applied to claim 3 above, and further in view of Lindahl et al. (5753793).

In regard to claim 8, Hanks et al. as modified by Shimamura et al. disclose the claimed invention as set forth above except wherein the signature response comprises

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a measured response of a mounted transducer to a test signal prior to initiating operations of the transducer.

Lindahl et al. discloses testing a transducer and during testing, the transducer is mounted to a surface (col 1 line 18-22).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. as modified by Shimamura et al. to have a measured response of a mounted transducer to a test signal before operation of the transducer as taught by Lindahl et al. in order to maintain significant measuring accuracy (col 1 line 18-20).

In regard to claim 39, Hanks et al. as modified by Shimamura et al. disclose the claimed invention as set forth above except wherein the measured response of an analog output transducer with built in test provides an additional interface for test results.

Lindahl et al. discloses wherein the results of a testing whether a transducer malfunctions are provided to a microprocessor (fig 6 (12)).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al. as modified by Shimamura et al. to incorporate a microprocessor as an interface for the results of the test as taught by Lindahl et al. in order to control the switching between a measuring and testing state (col 4 line 17-25).

8. Claims 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (5447051) in view of Shimamura et al. (5205151) as applied to claim 3 above, and further in view of Medelius (5734596).

Hanks et al. as modified by Shimamura et al. disclose the claimed invention as set forth above except wherein the measured response of an analog output transducer is modulated with a signal reflecting the results of a detected fault condition wherein the results are compensated in the output signal.

Medelius discloses wherein a transducer system is calibrated continuously so that when the system is miscalibrated, the system is calibrated so that the output is adjusted so as to provide a proper measurement signal as a result of calibration (abstract).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hanks et al as modified by Shimamura et al. to continuously calibrate the transducer based on results of an erroneous condition as taught by Medelius in order to provide reliable data to a centralized data acquisition system (col 1 line 25-32).

Allowable Subject Matter

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In regard to claim 12, the prior art does not teach or render obvious a signal source for generating a test signal to an output of the amplifier at a connection to the amplifier feedback in the combination as claimed.

Conclusion

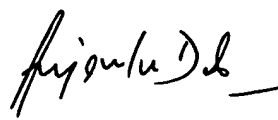
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lynas et al. (3786348) teaches a system for testing a piezoelectric transducer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeff Natalini



**ANJAN DEB
PRIMARY EXAMINER**